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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,147	01/16/2002	Mitsuyoshi Ichihashi	Q67100	3694

7590 06/28/2004
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EXAMINER

DUONG, THOI V

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/046,147

Applicant(s)

ICHIHASHI ET AL.

Examiner

Thoi V Duong

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fw

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-20 is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the Amendment filed April 19, 2004.

Accordingly, claim 1 was amended. Currently, claims 1-20 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al. (USPN 6,549,261 B1) in view of Fujimori et al. (USPN 5,771,084).

Re claim 1, as shown in Fig. 1, Okada et al. discloses a method for producing a cholesteric liquid crystal color filter, the method comprising the steps of:

(a) forming a liquid crystal layer 20 comprising a cholesteric liquid crystal composition that contains at least a polymerizable liquid crystal compound (polymer material 21 and liquid crystal 22 dispersed therein) (col. 6, lines 24-26), a photoreactive chiral dopant (col. 6, lines 34-36), and a polymerization initiator (col. 8, lines 1-7); and

(b) forming pixels at the liquid crystal layer (col. 6, lines 1-12),

wherein, re claim 2, the cholesteric liquid crystal composition comprises a nematic liquid crystal compound in an amount of 76 % by mass relative to the mass of solids of the liquid crystal composition (col. 11, line 60 through col. 12, line 12);

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wherein, re claim 3, the cholesteric liquid crystal composition comprises the photoreactive chiral dopant in an amount of 8 % by mass relative to the mass of solids of the liquid crystal composition (col. 11, line 60 through col. 12, line 12); and

wherein, re claim 4, the cholesteric liquid crystal composition comprises the polymerization initiator in an amount of 3 % by mass relative to the mass of solids of the liquid crystal composition (col. 11, line 60 through col. 12, line 12).

Okada et al. discloses a method for producing a cholesteric liquid crystal color filter that is basically the same as that recited in claim 1 except for forming partition walls at portions corresponding to a boundary of each of the pixels by UV light.

As shown in Figs. 1A, 1B and 3, Fujimori et al. discloses a method for forming a liquid crystal layer comprising a cholesteric liquid crystal composition that contains at least a liquid crystal compound including liquid crystal material and photocurable resin, a photoreactive chiral dopant, and a polymerization initiator; and producing partition walls 4 corresponding to a boundary of each of the pixels 3 by irradiating the portions through a mask 30 with ultraviolet light at a wavelength 365 nm to which the polymerization initiator is photosensitive (col. 5, lines 4-65).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method for producing a cholesteric liquid crystal color filter of Okada et al. with the teaching of Fujimori et al. by irradiating the liquid crystal compound through a mask with ultraviolet light at a wavelength to which the polymerization initiator is photosensitive to phase-separate the liquid crystal

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compound for forming partition walls at portions corresponding to a boundary of each of the pixels (col. 5, lines 45-50).

4. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al. (USPN 6,549,261 B1) in view of Fujimori et al. (USPN 5,771,084) as applied to claims 1-4 above and further in view of Baba et al. (USPN 6,344,300 B1).

The method for producing a cholesteric liquid crystal color filter of Okada et al. as modified in view of Fujimori et al. above includes all that is recited in claims 5-9 except for a polymerizable monomer, a binder resin and a surfactant. Baba et al. discloses a method of manufacturing color filter comprising photosensitive composition as follows:

With respect to claim 5, a polymerizable monomer in an amount of 20 to 70 % by mass relative to the mass of solids of the liquid crystal composition (col. 4, lines 60 through col. 5, line 19);

With respect to claims 6 and 7, a binder resin in an amount of 20 to 70 % by mass relative to the mass of solids of the liquid crystal composition, wherein the binder resin is a binder resin having a carboxyl group at a side chain (col. 4, lines 11-59); and

With respect to claims 8 and 9, a nonionic surfactant is incorporated in the liquid crystal layer in an amount of 0.1 to 5 % by mass (col. 8, lines 36-58).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the method of Okada et al. with the teaching of Baba et al. by using a photosensitive coloring composition so as to minimize the amount of development residue remaining on a transparent portion of a substrate after development (col. 2, lines 23-32).

Allowable Subject Matter

5. Claims 10-20 are allowed.

The following is an examiner's statement of reasons for allowance: none of the prior art of record fairly suggests or shows all of the limitations as claimed. Specifically,

Re claims 10 and 16, none of the prior art of record discloses, in combination with other limitations as claimed, a method for producing a CLC color filter comprising the step of forming partition walls at portions corresponding to a boundary of each of pixels or forming pixels while the liquid crystal layer is an amorphous state or a microcrystalline state.

The most relevant reference, JP 2001-303057, discloses a similar method for producing a CLC color filter; however, this reference is overcome by Applicants' priority document (JP 10534.2001).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

6. Applicant's arguments filed April 19, 2004 have been fully considered but they are not persuasive.

Applicant argued that neither Okada nor Fujimori teach or suggest the use of a polymerizable liquid crystal compound. The Examiner disagrees with Applicant's remarks since Okada discloses a polymerizable liquid crystal compound comprising a

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polymerizable group and a liquid crystal dispersed therein (col. 6, lines 24-26). Fujimori also discloses a precursor mixture comprising a liquid crystal material and a photocurable resin (polymerizable group) for forming polymer walls at portions corresponding to a boundary of each of the pixels (col. 5, lines 45-50). Thus, it is obvious to one of ordinary skill in the art to modify the method of Okada with the teaching of Fujimori for forming polymer walls by irradiating with UV light.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong



06/20/2004



ROBERT H. KIM
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